NOAA in the Arctic

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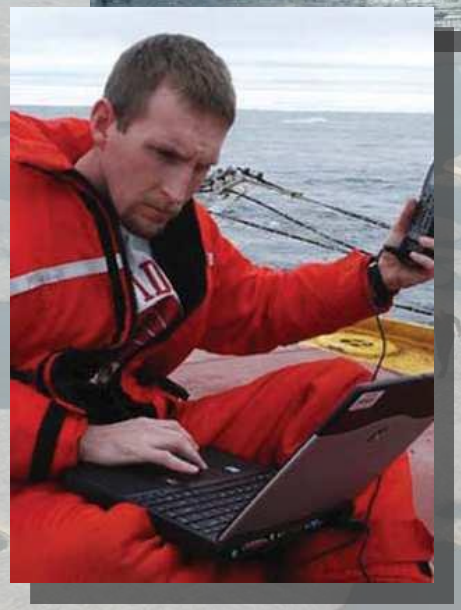
Outline

- Context
- NOAA's Arctic Vision
- Guiding Principles
- Arctic Goals and Strategy
- Next Steps



Context

- Importance of an Arctic strategy for NOAA
- Framed around science, national security, and stewardship
- Need for coordination and collaboration between partners, intended to align with other initiatives
- Global Importance of the Arctic

NOAA's Arctic Vision

- NOAA envisions an Arctic where:
  - Conservation, management, and use are based on sound science, and support healthy, productive, and resilient communities and ecosystems,
  - The global implications of Arctic change are better understood and predicted.

Guiding Principles

- Provide critical outcomes for other agencies and to support the National Ocean Policy
- Better understand the linkages between oceans and climate
- Advance the implementation of EBM and CMSP
- Concentrate action in the Bering, Chukchi, and Beaufort, but be global in scope
- Enable, inspire, and engage our stakeholders
- Incorporate the value of traditional and local knowledge
- Integrate education and outreach
- Incorporate new S&T developments
- Anticipate and respond to emerging issues

NOAA's Arctic Goals

Forecast Sea Ice

Strengthen Foundational Science to Understand and Detect Arctic Climate and Ecosystem Changes

Improve Weather and Water Forecasts and Warnings

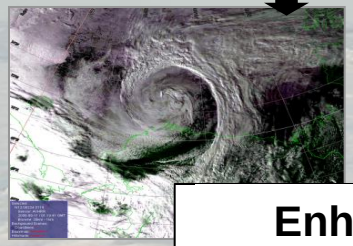
Enhance International and National Partnerships

Improve Stewardship and Management of Ocean and Coastal Resources in the Arctic

Advance Resilient and Healthy Arctic Communities and Economies

Relationship between Goals

Improve weather and water forecasts



Detect and understand climate and ecosystem changes

Enhance national and international partnerships

NSF SAON SUSTAINING ARCTIC OBSERVING NETWORKS ARCTIC COUNCIL NOAA

Advance resilient communities and economies

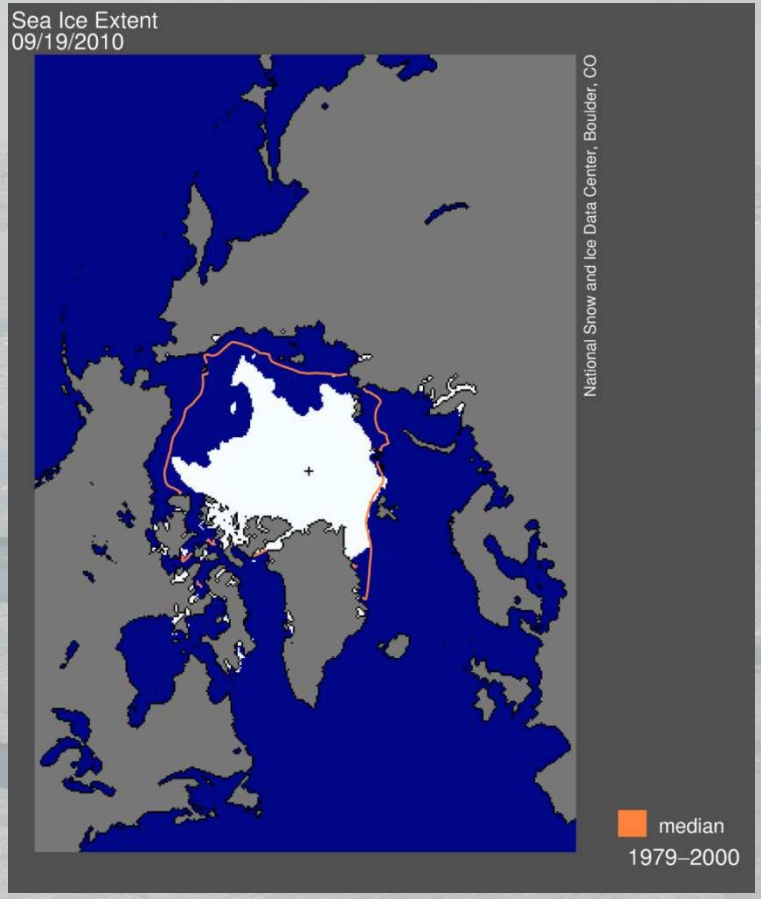
Improve management of ocean resources

Goal 1: Forecast Sea Ice

Goal Statement – Accurate, quantitative, daily forecasts to decadal predictions of sea ice are provided to support safe operations and ecosystem stewardship.

Five-year Strategy

- Improve daily to weekly sea ice models and forecasts and new seasonal prediction services
- Multi-decadal sea ice projections
- Retrospective and prospective studies of the linkages between changes in Arctic sea ice and hemispheric weather and climate

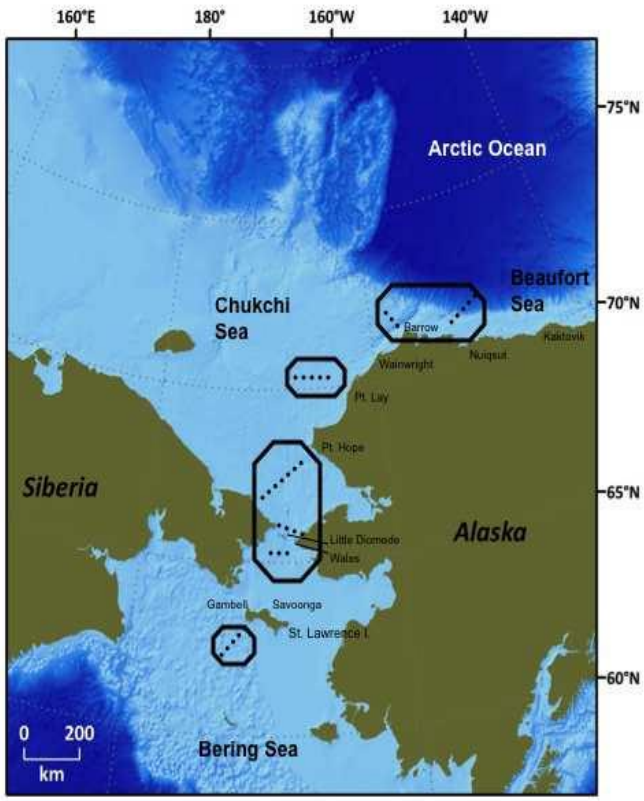


Goal 2: Strengthen Foundational Science to Understand and Detect Arctic Climate and Ecosystem Changes

Goal Statement – Improved baseline observations and understanding of Arctic climate and ecosystems reduces the uncertainty in assessing and predicting impacts caused by a changing Arctic.

Five-year Strategy

- Form the basis for a NOAA Arctic Change Detection System with
  - Enhanced and integrated set of environmental observations
  - Rapid organization, interpretation of this data in near realtime
  - Water level information and forecasts



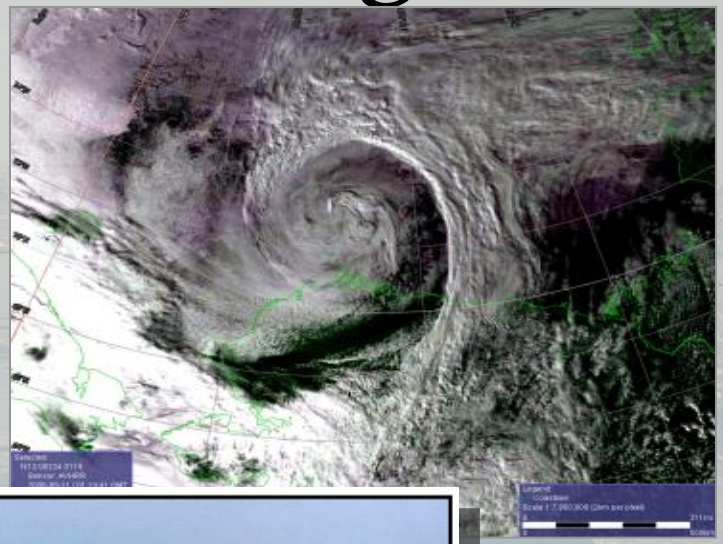
Four possible regional locations of Distributed Biological Observatory transect lines and stations

Goal 3: Improve Weather and Water Forecasts and Warnings

Goal Statement - Advanced, accurate forecasts and warnings are provided to ensure society can prepare for and respond appropriately to weather-related routine and extreme events.

Five-year Strategy

- Improve Arctic marine weather, sea ice and storm forecast services.
- Protect northern and western Alaska coastal communities from storm surge, inundation, and erosion hazards.



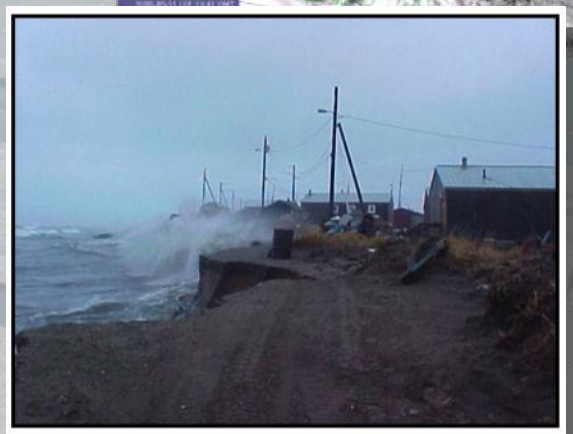


Photo 10: Shoreline erosion during coastal storm in Shismaref. (Credit: Tony Weyiouanna)

Goal 4: Enhance International and National Partnerships

Goal Statement: National and international partners are engaged to promote cooperation and sharing of data, observational platforms, and intellectual resources to enable more rapid and comprehensive attainment of NOAA's Arctic science and ecosystem-based management goals.

Five-year Strategy

- Encourage data sharing at multiple levels among providers and users
- Expand Arctic protection mechanisms
- Provide leadership and resources to support Arctic governance and science organizations
- Support development of effective SAON process

Launch of rosette during 2009 RUSALCA expedition

ARCTIC COUNCIL

NSF

SAON
SUSTAINING ARCTIC OBSERVING NETWORKS

NORTH PACIFIC RESEARCH BOARD

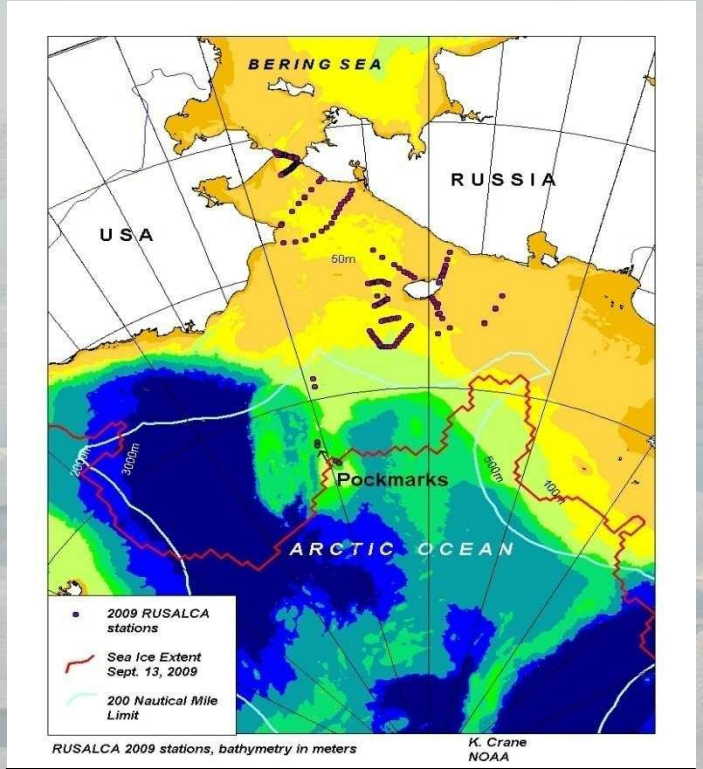
NOAA

Goal 5: Improve Stewardship and Management of Ocean and Coastal Resources in the Arctic

Goal Statement - Conservation, stewardship, management, and use of ocean and coastal resources are based on sound science, and support healthy, productive, and resilient ecosystems and communities.

Five-year Strategy

- Continue ongoing assessment programs on marine mammals, fish, and shellfish
- Expand two existing programs
  - BASIS and RUSALCA
  - NOAA's ocean acidification program



RUSALCA Ecosystem stations taken in 2009 from the Bering Strait north to 77°N on the Chukchi Plateau.

Goal 6: Advance Resilient and Healthy Arctic Communities and Economies

Goal Statement - Resilient and healthy Arctic communities and economies through improved geospatial infrastructure, safe navigation, oil spill response readiness, and climate change adaption strategies.

Five-year Strategy

- Overhaul the Arctic Geospatial Framework
- Deliver scientific support for Arctic pollution response
- Survey and map Arctic waters and shoreline
- Support coastal communities with adaptive strategies and planning tools

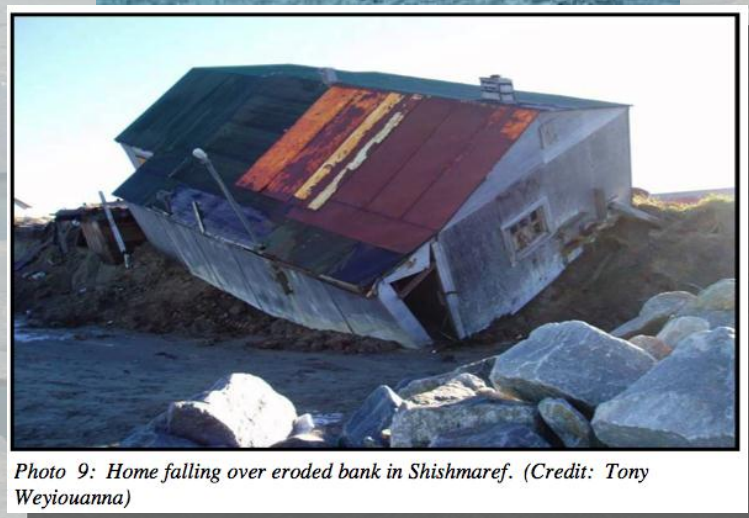


Photo 9: Home falling over eroded bank in Shishmaref. (Credit: Tony Weyiouanna)

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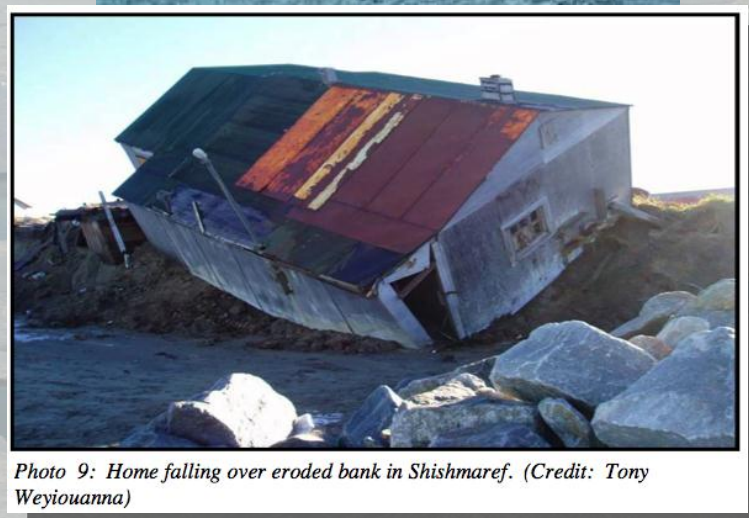

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Relationship to the National Ocean Policy

- **NOAA's Arctic Vision and Strategy supports the National Ocean Policy priority objective on Changing Conditions in the Arctic:**
  - Address environmental stewardship needs in the Arctic Ocean and adjacent coastal areas in the face of climate-induced and other environmental changes.

Operational Challenges

- Ice-diminished, not ice-free
  - Short survey season – late May to Sept
  - Still a harsh environment – wx, light, ice
  - Uncertainty in predicting sea ice coverage
  - Lack of supporting infrastructure (communications, tides, positioning, supply, etc…)
- Limited U.S. survey capacity
  - Age of existing fish and hydro-capable fleet
  - Need for new concepts of operations, new technologies (AUV, UAS…)
- $,$,$

Next Steps

Timeframe	Action
January – July 2011	Develop draft National Ocean Policy Arctic Strategic Action Plan
April – July 2011	Develop NOAA Implementation Plan

For More Information, Contact

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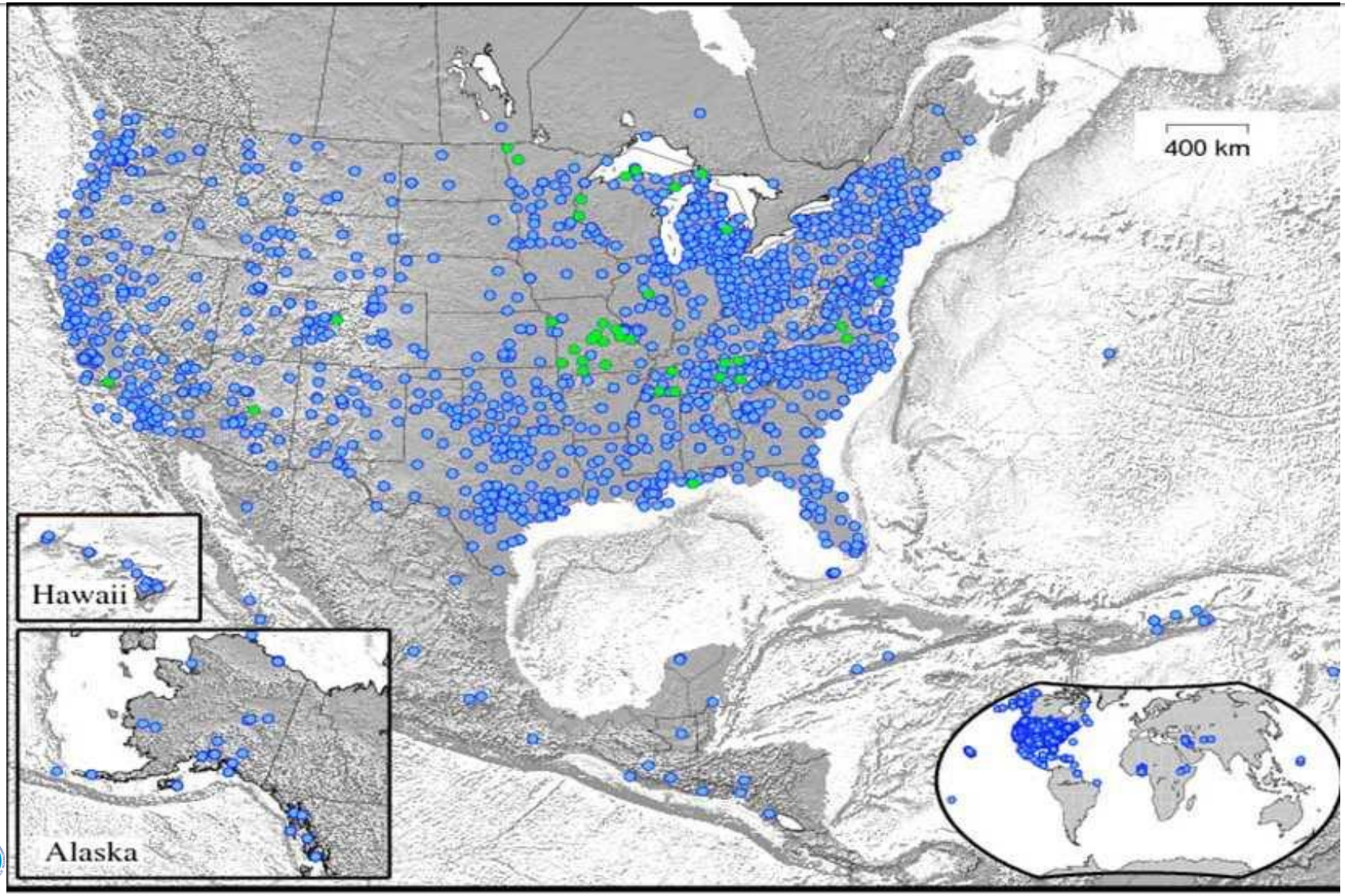
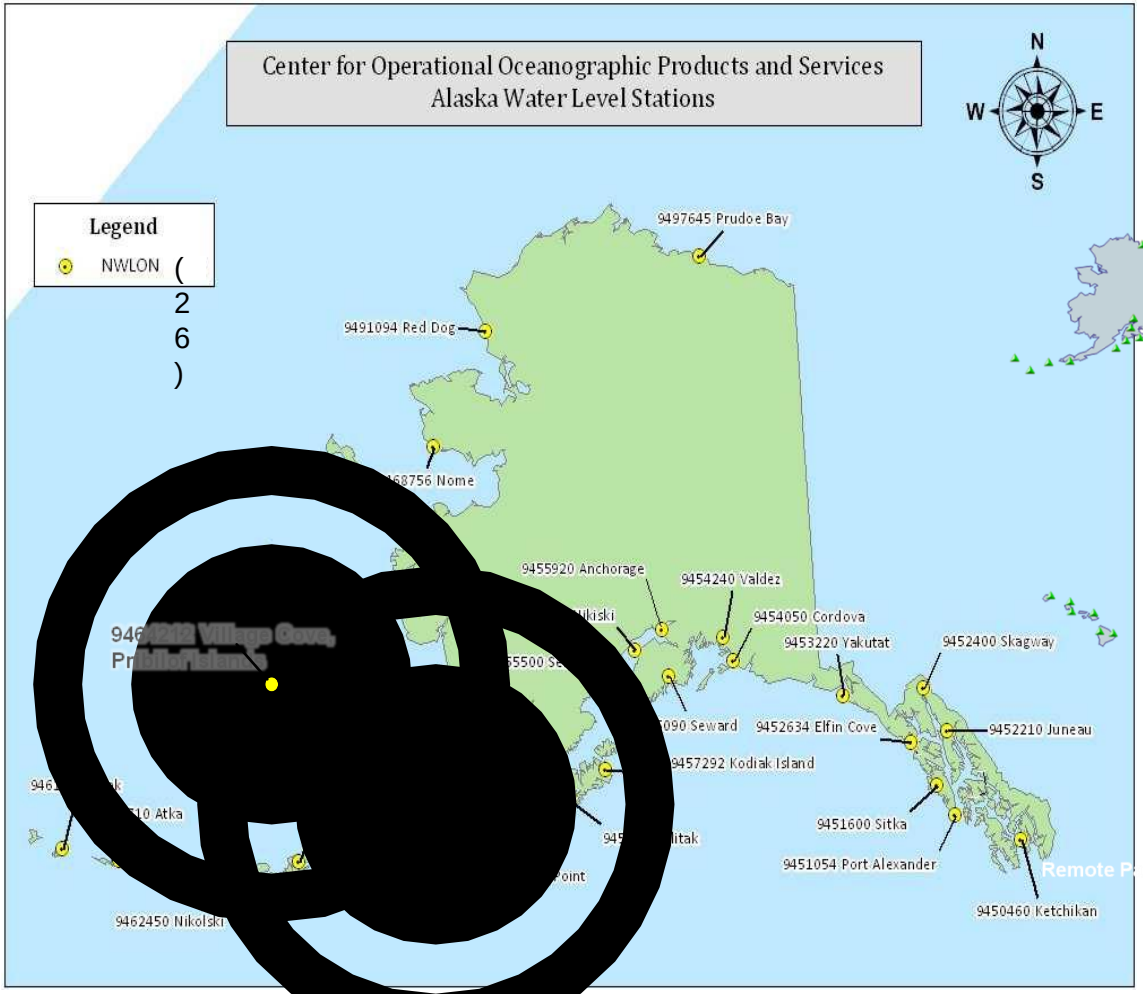
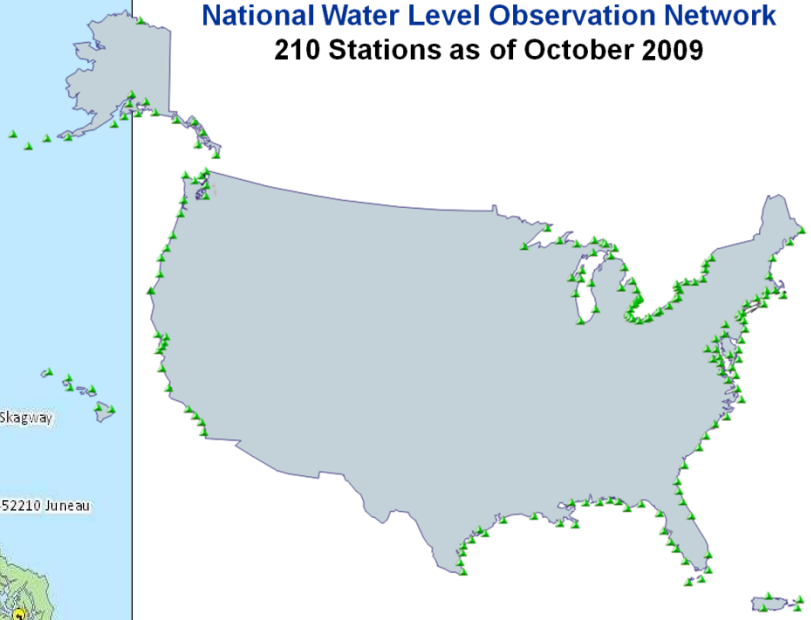
Questions?

Foundational Geospatial Framework: Geodetic Control… Today

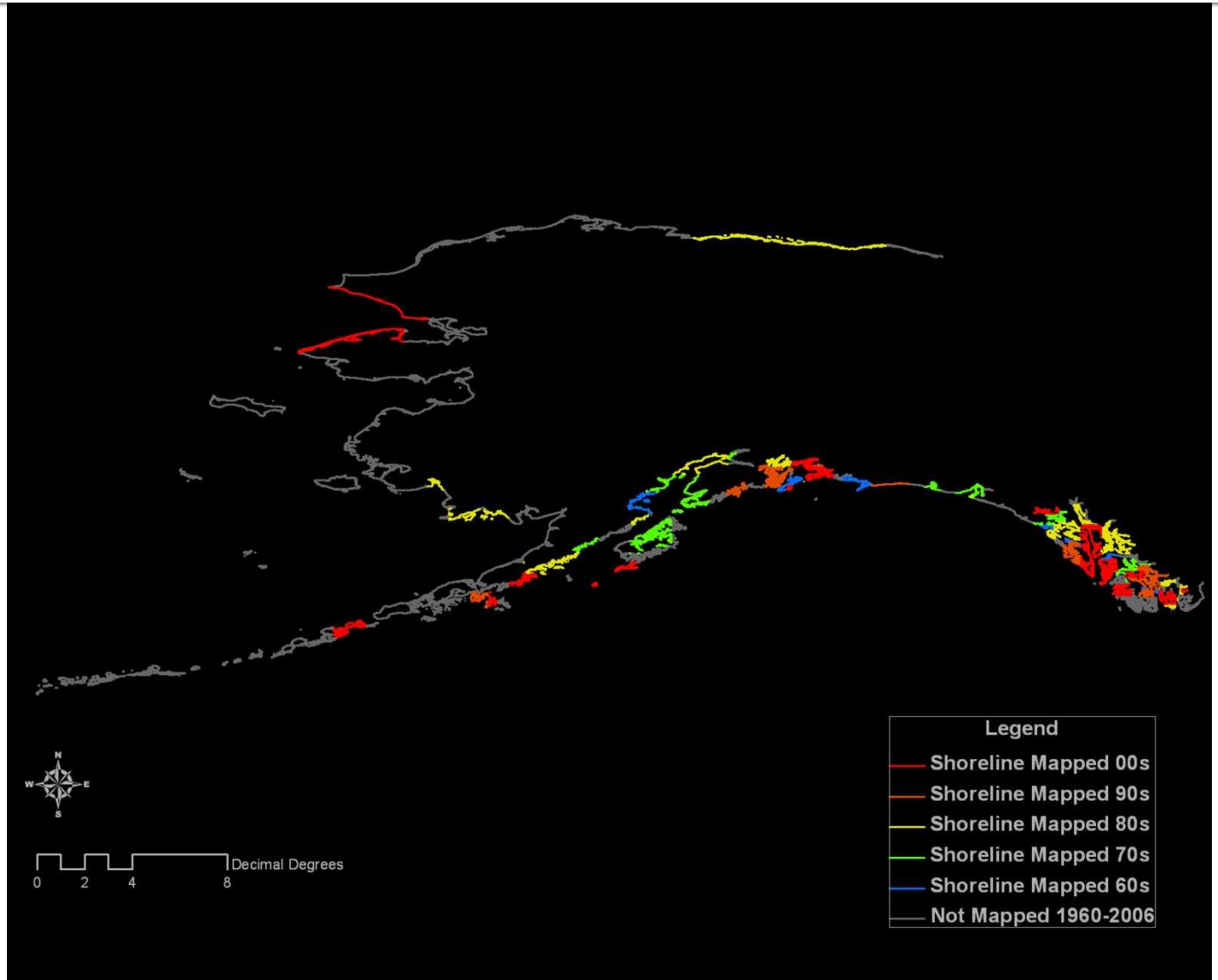


Foundational Geospatial Framework: Water Levels… Today

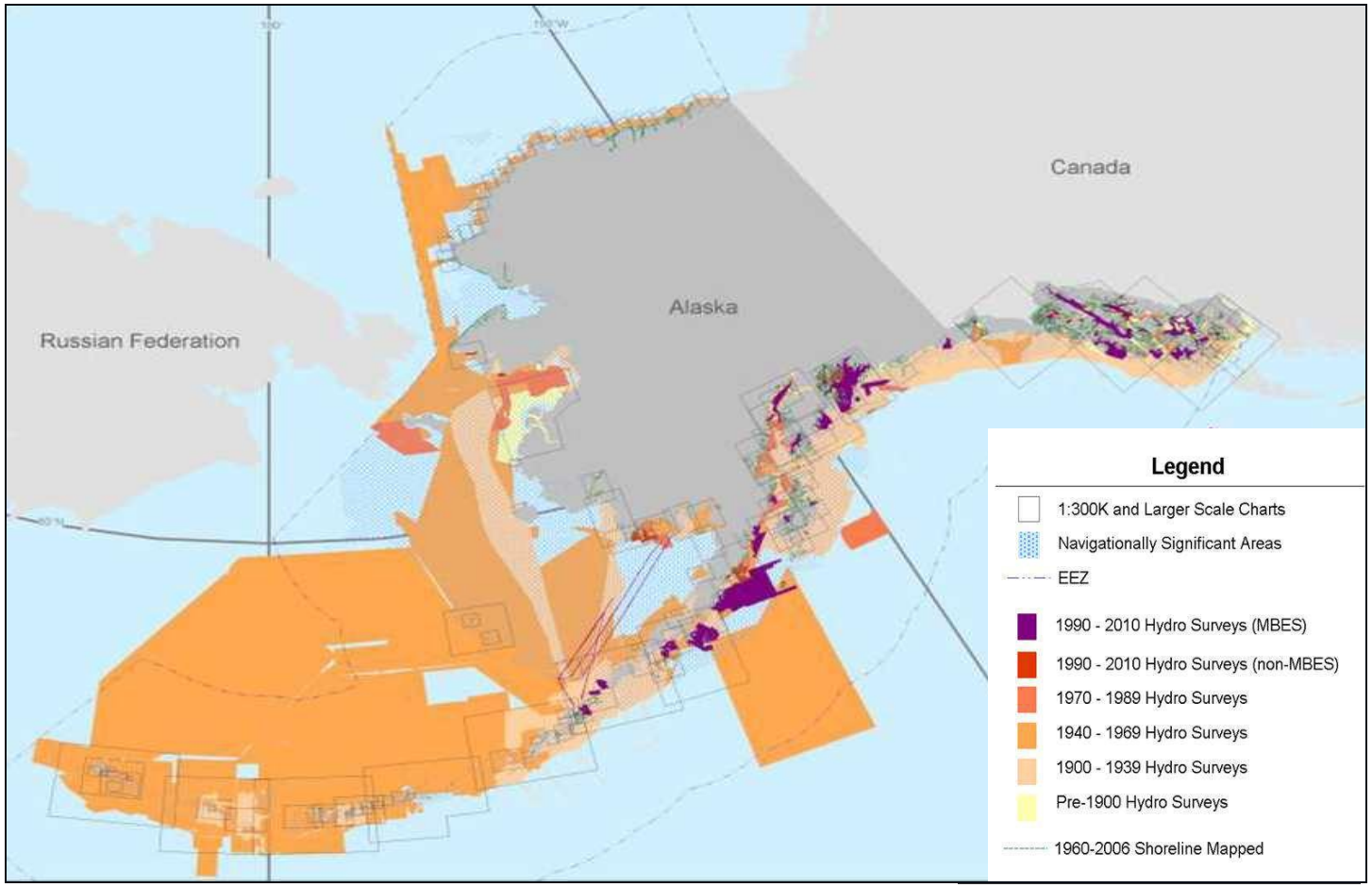


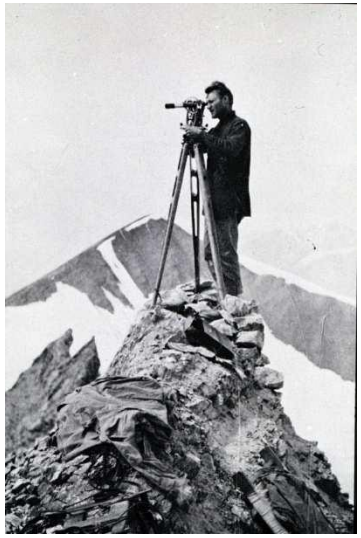


Foundational Geospatial Framework: Shoreline… Today



Foundational Geospatial Framework: Hydrography… Today





Foundational Geospatial Framework

Future

- **Survey area prioritization with stakeholders**